

ADHESIVELY BONDED ELECTROCHEMICAL CELL STACKS

ABSTRACT OF THE DISCLOSURE

A method for assembling electrochemical cells for monopolar arrays or bipolar stacks using an adhesive to bond and seal the interfaces of the stack components. Adhesives may bond and seal the components of an electrochemical cell stack, thereby providing a much lighter assembly than those stacks using traditional assembly methods and techniques. Accordingly, no gaskets, o-rings or similar devices are required to seal between the components. The adhesive may be an adhesive type selected from types consisting of reactively cured, thermoplastic, and cured by solvent loss. The adhesive may be an epoxy having a hardness (Shore A) of between about 90 and about 70, preferably about 80. The perimeters of the membrane that is part of a membrane and electrode assembly may be dimensionally stabilized by leaving the perimeter in the PFSP form, or by converting the protonated perimeter to a tetra-alkyl ammonium form or to a polyvalent cationic form.